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A New Subspecies of Parrotfish *Nicholsina ustus collettei* from the Eastern Atlantic Ocean

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At the time of my review (1958, U.S. Nat. Mus. Bull. 214, p. 128) of the parrotfishes (family Scaridae), the genus *Nicholsina* Fowler had not been reported from the eastern tropical Atlantic Ocean; however, among the fishes collected during November and December 1963 by Dr. Bruce B. Collette from the Guinean trawling survey ship *La Rafale*, there is a fine series of a new subspecies of *Nicholsina ustus* (Cuvier and Valenciennes) taken off Guinea, the west coast of Africa, from 8°52′N to 9°53′N latitude and 13°48′W to 15°56′W longitude at depths from 20 to 50 meters. The genus *Nicholsina*, thus, is now known from the eastern and western coastal waters of the Atlantic Ocean and the eastern coastal waters of the Pacific Ocean.

The specimens collected by Dr. Collette represent an extension of the range of the genus *Nicholsina* from the western Atlantic into the eastern Atlantic Ocean. This new subspecies is another example of species and subspecies differentiation between the two sides of the Atlantic Ocean, especially for reef-inhabitating and shallow water bottom-dwelling kinds of fishes.

The genus *Nicholsina* may be distinguished from other genera of scarid fishes by the following combination of characters: dorsal fin

IX,10, anal III,9, pectoral ii,11, rarely ii,12, median predorsal scales 4, the single row of scales below eye on cheek total 4, gill rakers 3 or 4+6 to 10 totalling 9 to 13; the branchiostegal membranes are attached to the isthmus with a narrow free fold across the isthmus; anterior nostril with a short free dermal flap not quite reaching the posterior nasal opening; dorsal and anal spines flexible, nonpungent.

The species and subspecies of *Nicholsina* are distinguished in the following key:

1a. Base of pectoral fin same color as body, not blackish; none of the spiny dorsal rays ending distally in a filament; distal edge of caudal fin not white edged; least width of preorbital notably very wide, contained about .6 to .7 in interorbital space; distance from tip of snout to rictus 1.6 to 1.7 in length of snout; diameter of eye contained about 2 times in the width of the preorbital.

2a. Total number of gill rakers on first gill arch 9 to 12 (rarely 12), average 10.53; number of teeth in outer posterior row of dentary 9 to 20, increasing in number with increase in length of fish (western Atlantic). **ustus ustus** (Cuvier and Valenciennes)

2b. Total number of gill rakers on first gill arch 11 to 13, average 11.93; number of teeth in outer posterior row of dentary 9 to 14, rarely 14, and not increasing in number with increase of length (eastern Atlantic) . . . . . **ustus collettei,** new subspecies

1b. Pectoral fin base black; spiny dorsal fin rays, at least posteriorly, ending distally in a short filament; distal edge of caudal fin broadly white edged in the young; least width of preorbital narrow, contained about 1.2 to 1.3 times in interorbital space; distance from tip of snout to rictus contained 1.0 to 1.2 times in length of snout; diameter of eye contained 1.0 to 1.2 times in preorbital width (Gulf of California to Peru). **denticulatus** (Evermann and Radcliffe)

Nicholsina ustus collettei, new subspecies

PLATE 1

HOLOTYPE.—USNM 201582, off Guinea, west Africa, at 9°53′N, 15°56′W, collected by Dr. Bruce B. Collette on the vessel *La Rafale*, Guinean Trawling Survey I, Transect 5, Station 3, depth 40 meters, Dec. 1, 1963, field number BBC–954, standard length 194 mm.

PARATYPES.—All obtained off Guinea, west Africa, by *La Rafale* in Guinean Trawling Survey I in 1963, collector Dr. Bruce B. Collette, as follows:

USNM 201446, same data as holotype, 4 spec., 146–181 mm.

USNM 201444, Trans. 7, Sta. 2, Nov. 26, 1963, field no. BBC–932, depth 30 m, lat. 9°27′N, long. 14°22′W, 2 spec., 133–164 mm.

USNM 201450, Trans. 8, Sta. 2, Nov. 24, 1963, field no. BBC–924, depth 30 m, lat. 8°52′N, long. 13°52′W, 6 spec., 125–157 mm.

USNM 201445, Trans. 8, Sta 1, Nov. 24, 1963, field no. BBC–923, depth 20 m, lat. 8°59′N, long. 13°48′W, 2 spec., 103–130 mm.

USNM 201447, Trans. 7, Sta. 1, Nov. 25, 1963, field no. BBC–931, depth 20 m, lat. 9°36′N, long. 14°13′W, 11 spec., 91–146 mm.

USNM 201449, Trans. 6, Sta. 3, Nov. 29, 1963, field no. BBC–947, depth 40 m, lat. 9°35′N, long. 15°18′W, 1 spec., 129 mm.
USNM 201448, Trans. 7, Sta. 3, Nov. 28, 1963, field no. BBC–933, depth 40–45 m, lat. 9°13′N, long. 14°38′W, 2 spec., 157–165 mm.
USNM, 201443, Trans. 6, Sta. 4, Nov. 29, 1963, field no. BBC–946, depth 50 m, lat. 9°24′N, long. 15°26′W, 1 spec., 140 mm.

DESCRIPTION.—Measurements were made on the holotype and six paratypes of *Nicholsina ustus collettei* and recorded in table 1 in thousandths of standard length, along with similar data for seven speci-

TABLE 1.—*Measurements on specimens of two closely related species of* Nicholsina *expressed in thousandths of standard length*

Characters	*N. ustus collettei*, new subspecies							*N. ustus ustus*						
	Holotype	Paratypes						USNM 53314	USNM 26554	USNM 163440	USNM 118990	USNM 38674	USNM 38674	USNM 53313
Standard length (in mm)	191	185	185	161	152	148	130	178	162	157	143	137	131	98
Length of head	356	382	346	335	349	358	331	337	333	344	329	336	321	327
Greatest depth of body	356	378	346	367	355	371	392	356	340	350	370	343	351	347
Length of snout	175	178	168	149	145	155	131	163	154	165	154	153	137	123
Diameter of eye	59	59	54	56	59	61	62	56	55	57	52	62	61	71
Least preorbital width	110	111	108	106	92	101	85	101	102	108	98	88	76	71
Least width fleshy interorbital	81	84	78	71	86	74	69	73	71	70	82	69	61	77
Postorbital length of head	167	178	173	162	181	183	169	163	167	163	157	161	153	188
Least depth caudal peduncle	141	143	141	140	138	142	146	163	148	140	161	142	149	143
Length of caudal peduncle	126	124	130	124	138	142	115	139	134	108	133	131	134	143
Length of longest fin ray														
spiny dorsal	115	124	151	130	145	148	100	146	154	147	154	146	156	138
soft dorsal	152	143	146	155	145	155	146	157	173	179	168	175	168	153
spine of anal	100	108	151	99	99	135	115	101	148	121	119	106	114	102
soft anal	141	141	141	137	132	135	123	157	130	134	133	139	126	117
pectoral	178	178	184	205	184	203	161	197	178	191	182	212	183	173
pelvic	147	173	151	162	165	169	154	174	161	172	175	190	168	158
caudal	194	243	227	230	230	243	231	253	272	280	245	256	252	255

mens of *N. u. ustus* from the vicinity of Florida. All counts except those of the gill rakers (table 2) are the same as those listed for the genus *Nicholsina*. I have found no variation in number of median fin rays and scales.

The lips almost cover the white teeth; along the margin of the upper jaw occur several canines that project outward from the premaxillary, the number of such canines increases with the increase in length, often numbering three or more on each side; the incisor-like teeth at front of both jaws are somewhat imbricated; inside of mouth the pre-

maxillary may have from one to several short canines on the largest specimens, but absent on those from 100 to 140 mm in length; the posteriormost row of teeth at side of dentary number from nine to 14 and the teeth apparently do not increase in number with increase in length as found for *N. u. ustus* (see table 2). The profile of snout forms an angle of 65° to 80° with that of lower jaw; distal margin of caudal fin slightly rounded; middle spines of dorsal longest and the sixth to eighth soft dorsal rays longest; the most dorsally located branched ray of pectoral longest and notably longer than any pelvic fin ray.

The appearance in alcohol is shown in plate 1.

REMARKS.—*Nicholsina ustus ustus* occurs abundantly in the western Atlantic Ocean from off New Jersey southward through Florida, Yucatan, Venezuela to Brazil eastward to Bermuda and Cuba.

Nicholsina denticulatus lives in the eastern Pacific Ocean and was recorded from the Gulf of California and at Lobos de Afuera, Peru (Schultz, op. cit., p. 129); additional Peruvian localities are: Lobos de Tierra (USNM 128106, 128107, 128108, 128109, 128110), North Chincha Island (USNM 128111), and Don Martin Island (USNM 128112).

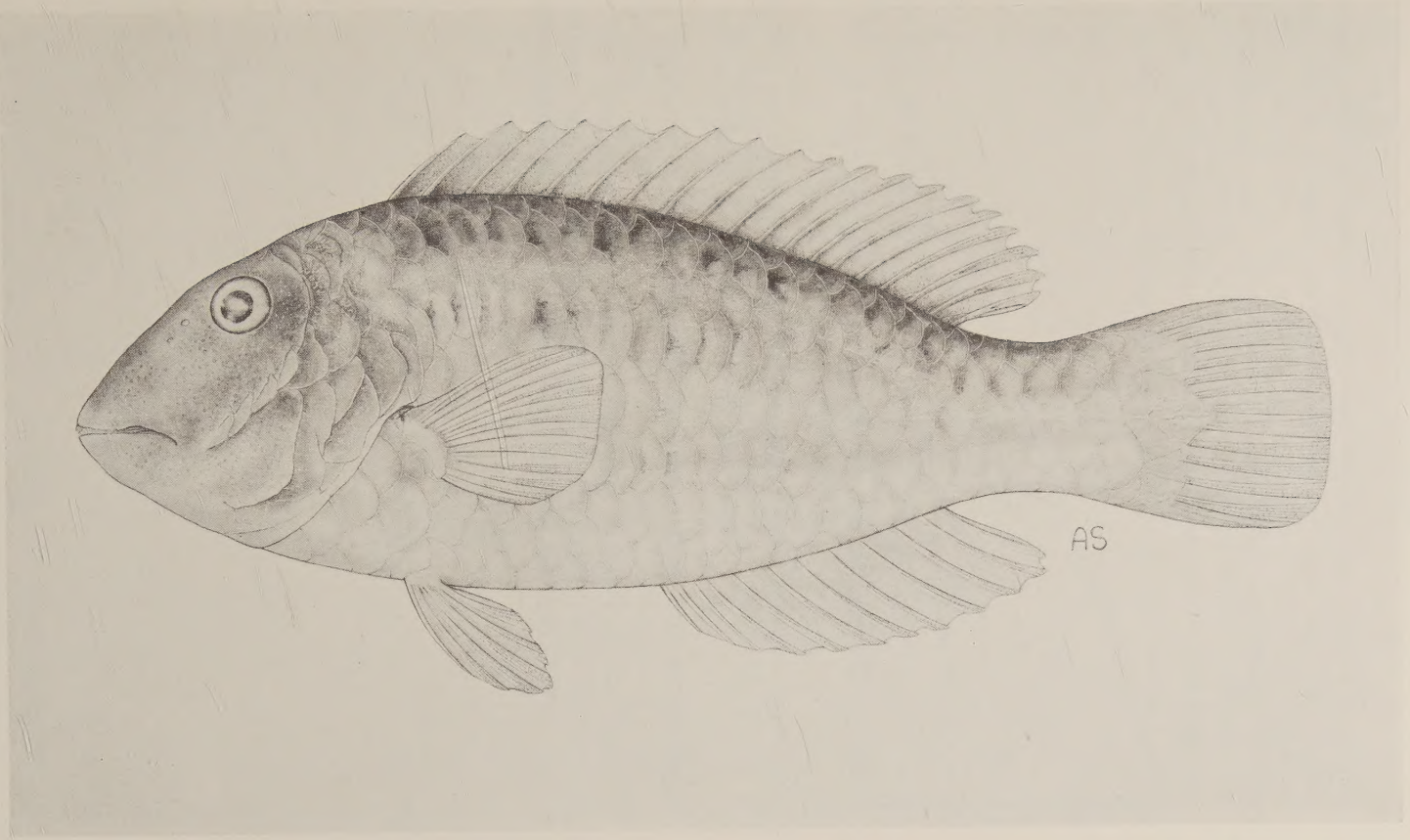
This new subspecies from the eastern Atlantic is close to *N. u. ustus* of the western Atlantic. The color pattern of specimens preserved in alcohol has faded so much that a comparison of the differences, if any,

TABLE 2.—*Number of gill rakers on first gill arch of* Nicholsina ustus

Subspecies	upper		lower					total					average
	3	4	6	7	8	9	10	9	10	11	12	13	
ustus ustus	17	–	2	5	9	1	–	2	5	9	1	–	10.53
ustus collettei	25	2	–	–	8	15	4	–	–	6	17	4	11.93

between the two subspecies is not now possible. Perhaps a comparison of the color patterns of the two subspecies of living specimens might reveal significant differences; however, no color photographs are available.

Two characters distinguish *N. u. collettei* from *N. u. ustus* at the subspecies level. The number of gill rakers on the first gill arch of *ustus* vary from 9 to 12, rarely 12 (average 10.53) (see table 2), whereas those of *collettei* are 11 to 13 (average 11.93). There is an 84 percent degree of separation if lines are drawn between 11 and 12 gill rakers (table 2). The other main difference observed between *ustus* and *collettei* is in the number of incisor-like teeth in the posterior row of the dentary. In *ustus* the teeth are smaller anteriorly and the number



Holotype of *Nicholsina usius collettei*, new subspecies USNM 201582 (drawn by Miss Ann Schreitz).

increases with increase in length, whereas in *collettei* the teeth do not make such a change in number with length of specimen (fig. 1). Dr. Collette kindly ran the number of teeth correlated with standard length through the automatic data processing equipment at the Smithsonian Institution and determined the correlation coefficient for *ustus* to be .65 (significant at .001 level with 42 degrees of freedom) and

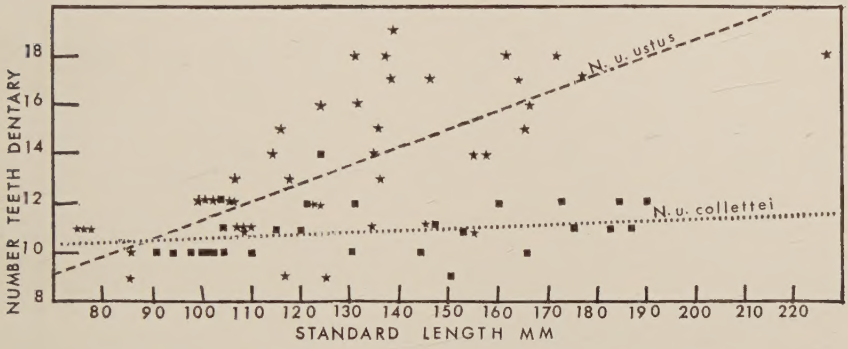


FIGURE 1.—Number of denticles plotted against standard length for specimens of *Nicholsina ustus ustus* (broken line and stars) and *N. u. collettei*, new subspecies (dotted line and squares) (coefficient of correlation: *ustus*=.65; *collettei*=.26).

for *collettei* to be .26 (not significant at the .1 level with 22 degrees of freedom).

This new subspecies is named "*collettei*" in honor of Dr. Bruce B. Collette, my ichthyological colleague at the Smithsonian Institution, who collected these parrotfishes in the eastern Atlantic Ocean.

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